DEPARTMENT OF THE ARMY
Omaha District, Corps of Engineers
106 South 15th Street
Omaha, Nebraska 68102-1618

:NOTICE: Failure to acknowledge :	**Solicitation No. DACA45 02 B 0008**
:all amendments may cause rejec- :	
:tion of the bid. See FAR :	**Date of Issue: 25 Feb 2002**
:52.214-3 of Section 00100 :	**Date of Opening: 04 Apr 2002**

Amendment No. 0002
26 March 2002

SUBJECT: Amendment No. 0002 to Specifications and Drawings for Construction of Consolidated Lodging Facility, Phase III, Minneapolis St. Paul – International Airport, Air Force Reserve Station, MN.

Solicitation No. DACW45 02 B 0008.

TO: Prospective Bidders and Others Concerned

1. The specifications and drawings for subject project are hereby modified as follows (revise all specification indices, attachment lists, and drawing indices accordingly).

CHANGES TO THE PROJECT SPECIFICATIONS:

1. Section 01040 – As Built Drawings, delete paragraph 1.4.2, and substitute the following:

"1.4.2 FINAL AS-BUILT DRAWINGS

The contractor shall produce final as-built drawings on autocadd (version 14.0) without "clouding". As-built preparpation process is provided in paragraph as-built preparation below. The final drawings shall include all changes. The final drawings in the form of a cd-rom shall be submitted to the COR and Omaha District Office (CENWO-ED-DI) no earlier than the day of acceptance of the project and no later than thirty (30) days after the date on the acceptance letter for the preliminary drawing unless otherwise directed by the COR. (Note: Final drawings shall not be forwarded to the customer. Corps of Engineers, Omaha District COR will forward to the customer after quality review.) Contractor shall submit one (1) set of CADD files on a CD-Rom to the Omaha District Office (attn: CENWO-ED-DI, Jim Janicek). Contractor shall send the following documents to the COR:

A) One (1) set of CADD files on cd-rom (folder name containing as-built files shall be designated "as-builts" on each cd-rom. Both CD case and cd-rom shall contain the name of the project, location, specification number, and contract number, and words "as-built record set"). The folder shall contain drawings, indexes and x-ref files related to all as-builts.
B) one (1) full-size set of vellumas-built drawings, along with all red-lined hard copy drawings prepared by the contractor during construction.
C) COR will forward one (1) full-size set of drawings along with cd-rom to the customer."

2. Section 01300 – Submittal Requirements

a. Paragraph 1.3.1, last line, delete ""G-ED", "G-AE" or "G-RE" " and substitute ""GA" or "GA-1" ".

b. Paragraph 1.11.1.1, title of paragraph, delete "G-ED or G-AE" and substitute "GA-1"

c. Paragraph 1.11.1.2,

i. title of paragraph, delete "G-RE" and substitute "GA"

ii. line 1, delete "G-RE" and substitute "GA"

d. Paragraph 1.13.1, title of paragraph, delete "G-AE or G-ED" and substitute "GA-1"

e. Paragraph 1.13.2,

i. title of paragraph, delete "G-RE" and substitute "GA"

ii. line 1, delete "G-RE" and substitute "GA"

f. Paragraph 1.2, Delete paragraph 1.2 and substitute the following:

"1.2 Submittal Identification (SD)

Definitions of submittals used in specifications are as follows:

SD-01 Data

Submittals which provide calculations, descriptions, or documentation regarding the work.

SD-04 Drawings

Submittals which graphically show relationship of various components of the work, schematic diagrams of systems, details of fabrication, layouts of particular elements, connections, and other relational aspects of the work.

SD-06 Instructions

Preprinted material describing installation of a product, system or material, including special notices and material safety data sheets, if any, concerning impedances, hazards, and safety precautions.

SD-07 Schedules

Tabular lists showing location, features, or other pertinent information regarding products, materials, equipment, or components to be used in the work.

SD-08 Statements

A document, required of the Contractor, or through the Contractor, from a supplier, installer, manufacturer, or other lower tier Contractor, the purpose of which is to confirm the quality or orderly progression of a portion of the work by documenting procedures, acceptability of methods or personnel, qualifications, or other verifications of quality.

SD-09 Reports

Reports of inspections or tests, including analysis and interpretation of test results. Each report shall be properly identified. Test methods used shall be identified and test results shall be recorded.

SD-13 Certificates

Statement signed by an official authorized to certify on behalf of the manufacturer of a product, system or material, attesting that the product, system or material meets specified requirements. The statement must be dated after the award of this contract, must state the Contractor's name and address, must name the project and location, and must list the specific requirements which are being certified.

SD-14 Samples

Samples, including both fabricated and unfabricated physical examples of materials, products, and units of work as complete units or as portions of units of work.

SD-18 Records

Documentation to record compliance with technical or administrative requirements.

SD-19 Operation and Maintenance Manuals

Data which forms a part of an operation and maintenance manual. "

3. Section 05500 – Miscellaneous Metal

a. Paragraph 2.7: Delete paragraph in its entirety.
b. Paragraph 3.5: Delete paragraph in its entirety.

4. Section 07421 – Composite Metal Building Panels

a. Paragraph 2.6: Revise paragraph to read as follows: "Insulation for exterior walls shall be as specified in Section 04220 NONBEARING MASONRY VENEER / STEEL STUD WALLS, paragraph 2.5.2 Insulating Sheathing."

5. Section 07220 – Roof Insulation

a. Paragraph 3.7.3: Delete last sentence of paragraph beginning with "Water-tight standing seam…"

6. Section 13851 – Fire Detection and Alarm System, Addressable

a. Paragraph 2.1: Delete paragraph 2.1 in its entirety.
b. Paragraph 2.2: Delete paragraph 2.2 in its entirety.
c. Paragraph 2.4: Delete paragraph 2.3 in its entirety.
d. Paragraph 2.8: Delete paragraph 2.8 in its entirety.
e. Paragraph 3.1.1: Delete paragraph 2.1 in its entirety.
f. Paragraph 3.1.3: Delete paragraph 2.1 in its entirety.

7. Section 15400 – Plumbing, General Purpose

a. Paragraph 3.6.3: Add the following sentence to paragraph, "Apply color tabs on ceilings to indicate location of valves, control boxes or access doors above the ceiling".

8. Section 15569 – Water Heating; Gas: Up to 20 MBTUH

a. Add the attached Specification Section 15569 – Water Heating; Gas: Up to 20 MBTUH, to the Project Specifications.

9. Section 15895 – Air Supply, Distribution, Ventilation, and Exhaust system

a. Paragraph 2.8.3.2: After the heading “Fire Dampers” add “(and combination smoke and fire dampers).”

10. Section 15950 – HVAC Sequence of Operation

a. Paragraph 3.1.4: Revise paragraph title to “Air Handling Unit AHU-2.2. Control”

b. Paragraph 3.1.4: Delete all references to outside air damper for AHU-2.2.

c. Paragraph 3.1.4: Delete all references to resetting discharge temperature for humidity control.

d. Paragraph 3.1.5: Revise paragraph title to “Combination Smoke and Fire Dampers.”

e. Paragraph 3.1.7: Revise item 5 to read: "In "Cool" temperature mode, compressor shall cycle to maintain temperature set point."

f. Paragraph 3.1.12: Add the following new paragraph:

“3.1.12 Boilers (B1.1 and B1.2) Control Sequence

System consists of:

One (1) hot water boiler.

Two (2) circulating pumps (parallel operation)

Boiler Manufacturer's Boiler Management System (BMS)

Hot Water Supply Reset: BMS shall reset hot water supply temperature based on outside air temperature per the following schedule:

OUTSIDE AIR		HOT WATER SUPPLY	
0 ?F	200 ?F	65 ?F	160 ?F

Hot Water Control: Furnished as part of the BMS and will maintain reset schedule by modulating boiler-burner.

Mechanical Contractor shall be responsible for installing and connecting all boiler burner controllers and indicators that are not factory installed and wired by boiler manufacturer. The above shall include all work on remote boiler control panel as required for specified boiler. Interlock boilers with hot water pumps so that pumps run before burner is allowed to fire and burners stop when hot water pumps are stopped. Enable/Disable boiler from BAS with a dry contact.

11. Section 15951 - Direct Digital Control for HVAC

a. Paragraph 1.2: Add the sentence: “Installed system shall allow control from the head end controller of the existing Johnson Controls Metasys DDC system.”

b. Paragraph 1.3: Submittals under SD-8 Statements: Training Course Materials, revise the last sentence to read: “The training course material shall include the operation manual, maintenance and repair manual, diagnostics using the provided portable workstation tester and central workstation tester, and paper copies of overheads used in the course.

12. Section 15990 - Testing, Adjusting, And Balancing of HVAC Systems

a. Paragraph 1.6: Add the following, "In addition to the new work the entire heating water system of the existing facility shall be balanced to obtain a balance of the entire system. The existing system consists of approximately four air handling unit coils, eight fan coil unit coils, twelve unit heaters, one cabinet unit heater, fin tube convectors, and two circulation pumps."

C. Drawings. The following drawing sheets are revised as indicated below with latest revision date of 26 Mar 2002.

CHANGES TO THE CIVIL AND LANDSCAPE DRAWINGS:

1. Drawing C1.3 (Phase Three Site Demolition)

a. Revise note is southwest corner of site that reads "Clear and grub" to read as follows: "Clear and grub tree"

2. Drawing C2.3 (Phase Three Site Excavation)

a. Revise Phase Three Site Excavation to add legend reference per reissued sheet C2.3 (see attached drawing.)

3. Drawing C4.3 (Phase Three – Erosion Control Plan)

a. Clarification: Dashed "L" shaped line around building has no relevance to this plan and is deleted from drawing.

4. Drawing C5.3 (Phase Three Site Surfacing Plan)

b. Revise Site Surfacing Plan to add detail references per reissued sheet C5.3 (see attached drawing.)

5. Drawing C9.3 (Site Details)

a. Detail 8: Revise detail to be "Not in Contract".

6. Drawing C11.3 (Site Details)

a. Detail 24: Revise detail to be "Not in Contract".
b. Detail 25: Revise detail to be "Not in Contract".

CHANGES TO THE ARCHITECTURAL DRAWINGS:

1. Drawing A2.9 (Roof Plan)

a. Detail 5B: Extend east/west section of roof protective mat east to grid 4.8 (approximately 9753 mm (32 feet).

2. Drawing A5.8 (Roof Details)

a. Detail 3D: Add the following note: "Provide 1200 mm x 1200 mm (4'- 0" x 4'- 0") sump centered on roof drain, typ."

3. Drawing A5.9 (Exterior Details)

a. Detail 1C: Add the following note to the relieving angle shown, "Relieving angle to be 717 mm x 100 mm x 9 mm (7" x 4" x 3/8") angle. Fasten as required to accommodate for 6 lb/ft brick load."

b. Detail 3A: Add the following note to the relieving angle shown above window head, "Relieving angle to be 717 mm x 100 mm x9 mm (7" x 4" x 3/8") angle. Fasten as required to accommodate 6 lb/ft brick load."

c. Detail 4A: Revise rigid insulation R-value to be R-5 per inch (in lieu of R-12)

4. Drawing A5.15 (Exterior Details)

a. Detail 3D: Add note to read: " At similar condition, face of metal panel is to be flush with precast sill below".

5. Drawing A7.4 (Enlarged Room Plans and Interior Elevations)

a. Detail 5B: Add the following note: "See 5D/A7.5 for minibar elevation".

b. Detail 5A (A) and 5A (C): Add the following note to both elevations: "Provide sealant between tub and ceramic tile".

CHANGES TO THE STRUCTURAL DRAWINGS:

1. Sheet S1.4 (Foundation Plan)

a. Detail 5A: Provide #5 dowels at 8" o.c. vertical from link foundation wall to elevator shaft foundation wall at grid 4.8. Dowels to extend min. 24" into each foundation wall.

2. Sheet S1.5 (Control Joint Plans)

a. Add Recessed Floor mat location in slab on grade at Corridor 1113. Add General Note #6 to read, "Refer to architectural drawings for exact size and location of recessed floor mats."

3. Drawing S2.3 (Foundation Details)

a. Detail 11: Revise note "6x6 – W2.9 x W2.9 WWM" to read "#4 bars at 16" o.c. each way"

4. Sheet S3.7 (First and Second Floor Framing Plan)

a. Detail 5A: Move detail reference cut "7/S4.7" from Grid F to Grid D.3.

b. Add following text to General Framing Plan note No. 4: "Topping to be reinforced with 6x6 – W2.1xW2.1 W.W.M."

c. Add Framing Plan Keyed Note 12: "(2) Link columns adjacent existing building to be anchored to existing piers with (4) ¾" diameter x 6" long expansion anchor bolts."

5. Sheet S3.8 (Third and Fourth Floor Framing Plan)

a. Add following text to Framing Plan General Note No. 4: " Topping to be reinforced with 6x6 – W2.1xW2.1 W.W.M."

6. Sheet S3.10 (Roof Framing Plan)

a. Move detail cut "7/S4.6" on Grid 2.5 south of Grid K.4 at CMU wall.

7. Sheet S4.6 (Structural Details)

a. Detail 7: Add #4 dowel x 16" long at 16" o.c. from bond beam to 4" CMU.

8. Sheet S4.8 (Structural Details)

a. Detail 10: Revise detail per attached drawing S13.

b. Detail 11: Revise length of 102mm x 89mm x 8mm(4" x 3 ½" x 5/16") angle to be 400mm (16") in lieu of 152mm (6").

CHANGES TO THE MECHANICAL DRAWINGS:

1. Drawing M2.4 (1st Floor Mechanical Plan)

a. Add General Note 4: "Manual balancing dampers shall be installed at all individual duct takeoffs and all duct branch takeoffs for all supply, return, and exhaust ducts."

b. For notes referring to the water heater and associated items, revise "(BY OTHERS)" to read, "(BY PLUMBING CONTRACTOR)."

c. Clarification: Reference symbol for enlarged plan of mechanical room should read, "A /M2.4? M3.2.

2. Drawing M2.5 (2nd, 3rd and 4th Floor Mechanical Plan)

a. Add General Note 2: "Manual balancing dampers shall be installed at all individual duct takeoffs and all duct branch takeoffs for all supply, return, and exhaust ducts."

3. Drawing M3.2 (Mechanical Equipment Room Plans, Chase Details, Sections)

a. Add General Note 2: "Manual balancing dampers shall be installed at all individual duct takeoffs and all duct branch takeoffs for all supply, return, and exhaust ducts."

4. Drawing M6.4 (Mechanical Details)

a. Detail 10: Add a keynote 2 symbol after "BALANCE VALVE" and add keynote 2: "Contractor will install balancing valves on the hot water coils return pipes for existing air handling units AHU-1.1 (69 gpm), AHU-1.2 (20.3 gpm), AHU-2.1 (45 gpm), and AHU-2.2 (7.3 gpm). Contractor to verify actual piping arrangements."

5. Drawing M7.4 (Mechanical Schedules)

a. Add boiler HWB-1.2. Boiler to be Fulton PHW 1400 or approved equal. Install according to manufacturer's instructions. Include the manufacturer's standard trim, including intake and exhaust mufflers, vibration isolation mounting pads, vibration hangers on combustion intake and flue vent piping and mufflers, pipe flexible connectors, PVC combustion air intake pipe, stainless steel flue vent, screened inlet, exhaust vent wall cap, and all required collars, sleeves, escutcheons, and flashing. Locate in Phase 1 mechanical room (Room 1019) between the existing boiler HWB-1.1 and the water heater. Connect water piping and gas piping to existing. Route combustion air intake to east wall near existing combustion air

intake. Route flue vent to west wall near existing flue vent. Install condensate drainpipe to plumbing drain.

b. Revise heating capacity of HC-2.1 to 520 MBH.

c. Revise external static pressure of AHU-2.1 exhaust fan to 3 inches water gauge.

CHANGES TO THE FIRE PROTECTION DRAWINGS:

1. Drawing F2.4 (1st Floor & Basement Fire Protection Plan)

a. General Notes: Revise note number 6 to read, "Not Used".

CHANGES TO THE ELECTRICAL DRAWINGS:

1. Drawing E0.1 (Electrical Legend Symbols)

a. The standard symbol for a single telephone outlet (triangle) shall be re-defined to be a telephone/data duplex jack configuration, which shall include 2 cable runs of category 5 cable to each outlet with the exception of room 0104 which shall only have 2 phone lines as shown.

2. Drawings EU3.0 (Electrical Utility Plan)

a. Revise Note 4 to refer to Phase 3 building, not Phase 2 building.

b. Delete Site Plan Notes #3 and #7.

c. Revise Site Plan Note #8 to read as follows," Refer to drawing A2.3, detail 3A for equipment layout at service area."

d. Remove all fiber optic cable from this project.

3. Drawing E2.3 (1st Floor and Basement Power Plans)

a. Add a GFI weatherproof duplex receptacle to the exterior wall on the East side of room 1109, between doors and louver, and wire it to panel AIB-21.

b. In Elevator Equipment Room 0104, add a lockable disconnect to each elevator control panel and light circuit.

c. The 120V receptacle shown in Elevator Equipment Room 0104 shall be a GFI receptacle.

d. Each elevator shall have a 200 A fused disconnect. The fuses in this disconnect shall be 110A Provide a N.O. auxiliary contact for the anti-entrapment device interface on the disconnect.

4. Drawings E3.3

a. Heat detectors shown in elevator hoistway shall be located in pit below two feet level.

b. Add a heat detector to elevator equipment room 104 and wire to meet ASME A17.1 for power shunt trip.

5. Drawing E5.9 (Riser Diagram)

a. Drawing of MDP-A states provide customer metering as specified. Customer metering shall be a Square-D PowerLogic model PM620 with LCD display or approved equal, to be mounted on the face of MDP-A.

6. Drawings E5.10

a. The four strand fiber running between the main closet and each floor shall be multi-mode.

b. Remove all fiber optic cable from this project.

7. Drawings E5.11 (Fire Detection and Cable TV Riser Diagram)

a. Revision: Stand alone smoke detectors in all the guest rooms should NOT be connected to the main FACP as was shown on riser diagram.

b. Delete the heat detectors at the top of the elevator hoistway.

c. The main fire alarm control panel shall be labeled "existing and located in Phase 1 building", all runs shall terminate at this panel.

d. There shall be only one annunciator panel which shall be located in Phase III building as shown.

e. Contractor shall verify the batteries in the Phase 1 main fire alarm control panel are adequately sized to accommodate all phases and upgrade as required.

2. This amendment is a part of the bidding papers and its receipt shall be acknowledged on the Standard Form 1442. All other conditions and requirements of the specifications remain unchanged. If the bids have been mailed prior to receiving this amendment, you will notify the office where bids are opened, in the specified manner, immediately of its receipt and of any changes in your bid occasioned thereby.

a. Hand-Carried Bids shall be delivered to the U.S. Army Corps of Engineers, Omaha District, Contracting Division (Room 301), 106 South 15th Street, Omaha, Nebraska 68102-1618.

b. Mailed Bids shall be addressed as noted in Item 8 on Page 00010-1 of Standard Form 1442.

3. Bids will be received until 2:00 p.m., local time at place of bid opening, 04 Apr 2002.

Attachments: Specs and Dwgs. listed above

U.S. Army Engineer District, Omaha
Corps of Engineers
106 South 15th Street
Omaha, Nebraska 68102-1618

MFS/4411

END OF AMENDMENT

SECTION TABLE OF CONTENTS

DIVISION 15 - MECHANICAL

SECTION 15569

WATER HEATING; GAS; UP TO 20 MBTUH

05/95

-- End of Section Table of Contents --

SECTION 15569

WATER HEATING; GAS; UP TO 20 MBTUH
05/95

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM D 1784	(1996) Rigid Poly(Vinyl Chloride) (PVC) Compounds and Chlorinated Poly(Vinyl Chloride) (CPVC) Compounds

ASME INTERNATIONAL (ASME)

ASME B31.1	(1995; B31.1a; B31.1b; B31.1c) Power Piping
ASME BPV IV	(1998) Boiler and Pressure Vessel Code; Section IV, Heating Boilers
ASME BPV IX	(1998) Boiler and Pressure Vessel Code; Section IX, Welding and Brazing Qualifications
ASME CSD-1	(1995; CSD-1a; CSD-1b) Controls and Safety Devices for Automatically Fired Boilers

HYDRONICS INSTITUTE (HYI)

HYI-01	(1998) I=B=R Ratings for Boilers, Baseboard Radiation and Finned Tube (Commercial) Radiation

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)

NFPA NFPA 54/ANSI Z223.1	(1996; Errata) National Fuel Gas Code

UNDERWRITERS LABORATORIES (UL)

UL 1738	(1993; Rev thru Jan 1997) Venting Systems for Gas-Burning Appliances, Categories II, III and IV
UL Gas&Oil Dir	(1996; Supple) Gas and Oil Equipment Directory

1.2 GENERAL REQUIREMENTS

1.2.1 Standard Products

Materials and equipment shall be the standard products of a manufacturer regularly engaged in the manufacture of the products and shall essentially duplicate items that have been in satisfactory use for at least 2 years prior to bid opening. Equipment shall be supported by a service organization that is, in the opinion of the Contracting Officer, reasonably convenient to the site.

1.2.2 Asbestos Prohibition

Asbestos and asbestos-containing products shall not be used.

1.2.3 Nameplates

Each major component of equipment shall have the manufacturer's name, address, type or style, model or serial number, and catalog number on a plate secured to the equipment. Each pressure vessel shall have an approved ASME stamp.

1.2.4 Equipment Guards

Belts, pulleys, chains, gears, couplings, projecting setscrews, keys, and other rotating parts exposed to personnel contact shall be fully enclosed or guarded in accordance with OSHA requirements. High temperature equipment and piping exposed to contact by personnel or where it creates a potential fire hazard shall be properly guarded or covered with insulation of a type specified. Catwalks, operating platforms, ladders, and guardrails shall be provided where shown and shall be constructed in accordance with Section 05500 MISCELLANEOUS METAL.

1.2.5 Verification of Dimensions

The Contractor shall become familiar with details of the work, verify dimensions in the field, and shall advise the Contracting Officer of any discrepancy before performing any work or ordering any materials.

1.2.6 Welding

Boilers and piping shall be welded and brazed in accordance with qualified procedures using performance-qualified welders and welding operators. Procedures and welders shall be qualified in accordance with ASME BPV IX. Welding procedures qualified by others, and welders and welding operators qualified by another employer may be accepted as permitted by ASME B31.1. The Contracting Officer shall be notified 24 hours in advance of tests, and the tests shall be performed at the work site if practical. The welder or welding operator shall apply his assigned symbol near each weld he makes as a permanent record. Structural members shall be welded in accordance with Section 05090 WELDING, STRUCTURAL.Welding and nondestructive testing procedures for piping are specified in Section 05093 WELDING PRESSURE PIPING.

1.3 SUBMITTALS

Government approval is required for submittals with a "GA" designation; submittals having an "FIO" designation are for information only. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

SD-01 Data

Manufacturer's Catalog Data; GA1.

Manufacturer's catalog data shall be included with the detail drawings for the following items:

Boilers
Fuel Burning Equipment
Combustion Control Equipment
Pumps
Fittings and Accessories
Fuel Oil Storage System
Water Treatment System

Radiant floor heating system including tubing, joints, and manifold for radiant floor heating systems.

The data shall show model, size, options, etc., that are intended for consideration. Data submitted shall be adequate to demonstrate compliance with contract requirements.

Spare Parts Data; GA1.

Spare parts data for each different item of material and equipment, after approval of the detail drawings and no later than 2 months prior to the date of beneficial occupancy. The data shall include a complete list of parts and supplies, with current unit prices and source of supply, and a list of the parts recommended by the manufacturer to be replaced after 1 and 3 years of service.

Water Treatment Plan; FIO.

Six complete copies of the proposed water treatment plan. The plan shall include a layout, control scheme, a list of the existing water conditions including the items listed in paragraph BOILER WATER TREATMENT, a list of all chemicals, the proportion of chemicals to be added, the final treated water conditions, and a description of environmental concerns for handling the chemicals. System shall operate with a 15% propylene glycol/water mix.

Heating and Fuel Systems Test Procedures; FIO.

Proposed test procedures for the heating system tests and fuel system tests, at least 2 weeks prior to the start of related testing.

Welding Procedures; FIO.

A copy of qualified welding procedures, at least 2 weeks prior to the start of welding operations.

Qualification; FIO.

A statement from the firms proposed to prepare submittals and perform installation and testing, demonstrating successful completion of similar services of at least five projects of similar size or scope, at least 2 weeks prior to the submittal of any other item required by this section.

Welding Qualification; FIO.

A list of names and identification symbols of qualified welders and welding operators, at least 2 weeks prior to the start of welding operations.

SD-04 Drawings

Heating System; GA1.

Detail drawings consisting of equipment layout including installation details and electrical connection diagrams; combustion and safety control diagrams; ductwork layout showing the location of supports and hangers, typical hanger details, gauge reinforcement, reinforcement spacing rigidity classification, and static pressure and seal classifications; and piping layout showing the location of guides and anchors, the load imposed on each support or anchor (not required for radiant floor tubing), and typical support details. Drawings shall include any information required to demonstrate that the system has been coordinated and will properly function as a unit and shall show equipment relationship to other parts of the work, including clearances required for operation and maintenance.

SD-06 Instructions

Posted Instructions; FIO.

System layout diagrams that show the layout of equipment, piping, and ductwork and typed condensed operation manuals explaining preventative maintenance procedures, methods of checking the system for normal, safe operation, and procedures for safely starting and stopping the system, framed under glass or laminated plastic, at least 2 weeks prior to the start of related testing. After approval, these items shall be posted where directed.

SD-07 Schedules

Tests; FIO.

Proposed test schedules for the heating system and fuel system tests, at least 2 weeks prior to the start of related testing.

SD-09 Reports

Heating System and Fuel System Tests; FIO.

Test reports for the heating system tests and the fuel system test, upon completion of testing complete with results.

Water Treatment Tests; FIO.

(1) The water quality test report shall identify the chemical composition of the boiler water. The report shall include a comparison of the condition of the boiler water with the manufacturer's recommended conditions. Any required corrective action shall be documented within the report.

(2) A test report shall identify the condition of the boiler at the completion of 1 year of service. The report shall include a comparison of the condition of the boiler with the manufacturer's recommended operating conditions.

SD-13 Certificates

Bolts; GA1.

Written certification by the bolt manufacturer that the bolts furnished comply with the requirements of this specification. The certification shall include illustrations of product markings, the date of manufacture, and the number of each type of bolt to be furnished based on this certification.

Boiler Emissions; FIO.

Written certification by the boiler manufacturer that each boiler furnished complies with Federal, state, and local regulations for emissions. The certification shall also include a description of applicable emission regulations. If any boiler is exempt from the emission regulations, the certification shall indicate the reason for the exemption.

SD-19 Operation and Maintenance Manuals

Heating System; FIO.

Six complete manuals listing step-by-step procedures required for system startup, operation, shutdown, and routine maintenance, at least 2 weeks prior to field training. The manuals shall include the manufacturer's name, model number, parts list, simplified wiring and control diagrams, troubleshooting guide, and recommended service organization (including address and telephone number) for each item of equipment. Each service organization shall be capable of providing 4 hour onsite response to a service call on an emergency basis.

Water Treatment System; FIO.

Six complete copies of operating and maintenance manuals for the step-by-step water treatment procedures, including procedures for testing the water quality.

1.4 MANUFACTURER'S SERVICES

Services of a manufacturer's representative who is experienced in the installation, adjustment, and operation of the equipment specified shall be provided. The representative shall supervise the installing, adjusting, and testing of the equipment.

1.5 DELIVERY AND STORAGE

Equipment delivered and placed in storage shall be protected from the weather, humidity and temperature variations, dirt and dust, and other contaminants.

PART 2 PRODUCTS

2.1 BOILERS

Each boiler shall have the output capacity in British thermal units per hour (Btuh) as indicated when fired with the specified fuels. The boiler shall be furnished complete with the gas burning equipment, boiler fittings and trim, automatic controls, electrical wiring, insulation, piping connections, and protective jacket. The boiler shall be completely assembled and tested at the manufacturer's plant. Boiler auxiliaries including fans, motors, drives, and similar equipment shall be provided with at least 10 percent excess capacity to allow for field variations in

settings and to compensate for any unforeseen increases in pressure losses in appurtenant piping and ductwork. However, the boiler safety devices shall not be sized for a 10 percent excess capacity. The boiler and its accessories shall be designed and installed to permit ready accessibility for operation, maintenance, and service. Boilers shall be designed, constructed, and equipped in accordance with ASME BPV IV. Each boiler shall be of the condensing type and designed for water service as specified herein. The boiler capacity shall be based on the ratings shown in HYI-01 or as certified by the American Boiler Manufacturers Association, or American Gas Association.

2.1.1 [Enter Appropriate Subpart Title Here]2.1.2 Not Used

2.1.3 Not Used

2.1.4 Condensing Boiler

Each boiler shall be a self-contained packaged type, complete with accessories, mounted on a structural steel base or a steel base which is integral to the boiler shell. Each boiler shall conform to the commercial design used by the manufacturer and shall permit free thermal expansion without placing undue stress on any part of the boiler. Each boiler which experiences the formation of condensate within the flue gas shall be specifically designed for condensing application. Each boiler shall withstand the corrosive effects of condensate for each part which may be in contact with the condensate at all possible operating conditions. Each boiler shall be provided with a separate air intake, exhaust, and condensate drain. Each boiler shall be designed to withstand the water temperature differentials anticipated at the required operating conditions without experiencing any damage due to thermal shock.

2.1.5 Boiler Construction

Provide hot water boilers suitable for pulse combustion with insulated housing, steel pressure vessel, natural gas burning system, complete automatic controls, and required boiler trim. Housing to be heavy gauge, enamel painted sheet metal with easily removable panels and access ports and fully insulated.

2.1.6 Hot Water Heating Boilers

The hot water heating boiler shall be capable of operating at the specified maximum continuous capacity without damage or deterioration to the boiler, its setting, firing equipment, or auxiliaries. The rated capacity shall be the capacity at which the boiler will operate continuously while maintaining at least the specified minimum efficiency. The boiler design conditions shall be as indicated on the mechanical schedules in the drawings.

2.2 FUEL BURNING EQUIPMENT

Boiler shall be designed to burn gas. Each boiler shall comply with Federal, state, and local emission regulations.

2.2.1 Not Used

2.2.2 Not Used

2.2.3 Not Used

2.2.4 Burner and Equipment

Burner Operation: Pulse combustion.

Gas Burner: Atmospheric type with air metering valve and pulse combustor, spark plug ignition, gas metering valve, manual shutoff valve.

Controls:

Pre-wired, factory-assembled electronic controls in control cabinet with flame scanner or detector, programming control, relays, and switches.

Provide pre-purge and post-purge ignition and shut-down of burner in event of ignition pilot and main flame failure with manual reset.

BOILER TRIM

Combination water pressure and temperature gauge; ASME rated pressure relief valve; drain valve; drain connection; plastic intake and vent outlet.

Low water cut-off with manual reset to automatically prevent burner operation when boiler water falls below safe level.

Operating temperature controller with outdoor reset to maintain boiler water temperature, and electronic controller.
See Section 15985 - Sequence of Operation.

High limit temperature controller for burner to prevent boiler water temperature from exceeding safe system temperature; pressure switch; pre-purge timer.

2.3 COMBUSTION CONTROL EQUIPMENT

Combustion control equipment shall be provided as a system by a single manufacturer. Field installed automatic combustion control system shall be installed in accordance with the manufacturer's recommendations and under the direct supervision of a representative of the control manufacturer. The boiler water temperature shall be controlled by a water temperature controller. The equipment shall operate either electrically or pneumatically. On multiple boiler installations, each boiler unit shall have a completely independent system of controls responding to the load and to a plant master controller. If recording instruments are provided, a 1 year supply of ink and 400 blank charts for each recorder shall be furnished.

2.3.1 Not Used
2.3.2 Electrical controls

Electrical control devices shall be rated at 24 volts and shall be connected as specified in Section 16415 ELECTRICAL WORK, INTERIOR.

2.3.3 Water Temperature Controller

The controller shall be of sturdy construction and shall be protected against dust and dampness. The thermostatic element shall be inserted in a separable socket installed in the upper part of the boiler near the water outletModulating controllers shall control the fuel burning equipment to

maintain set boiler water temperature within 2 percent. Controller shall be furnished with necessary equipment to automatically adjust the setting to suit the outside weather conditions. The outside air controller shall reset the water temperature setpoint to 160 degrees F when the outside air temperature is above 60 degree F. The setpoint shall be 200 degrees F when the outside air temperature is at or below 60 degrees F.The outside air reset controller shall be operated in such a manner that the operating temperatures required by the boiler manufacturer are not compromised.

2.3.4 Not Used

2.3.5 Not Used

2.3.6 Boiler Combustion Controls and Positioners

a. Gas boiler units shall be provided with modulating combustion controls with gas pilot or spark ignition. Modulating controls shall be provided with a means for manually controlling the firing rate.

b. Modulating control function shall be accomplished using positioning type controls. Air flow ratio and fuel control valve shall be controlled by relative positions of operative levers on a jackshaft responding to a water temperature controller. Positioning type combustion control equipment shall include draft controls with synchronized fuel feed and combustion air supply controls, while and shall maintain the proper air/fuel ratio. The desired furnace draft shall be maintained within 0.01 inch of water column.

2.3.7 Combustion Safety Controls and Equipment

Combustion safety controls and equipment shall be UL listed, microprocessor-based distributed process controller. The system shall include mounting hardware, wiring and cables, and associated equipment. The controller shall be mounted completely wired, programmed, debugged, and tested to perform all of its functions. The controller shall process the signals for complete control and monitoring of the boiler. This shall include maintaining boiler status, starting and stopping all control functions, sequencing control functions and signaling alarm conditions. The program shall be documented and include cross references in description of coils and contacts. Microprocessor shall be able to perform self diagnostics and contain a message center to provide operator with status and failure mode information. Controllers for each boiler shall be mounted on a separate, free standing panel adjacent to the boiler or for packaged boilers on the boiler supporting structure. Control systems and safety devices for automatically fired boilers shall conform to ASME CSD-1. Electrical combustion and safety controls shall be rated at 120 volts, single phase, 60 Hz and shall be connected as specified in Section 16415 ELECTRICAL WORK, INTERIOR. A 4 inch diameter alarm bell shall be provided and shall be located where indicated or directed. The alarm bell shall ring when the boiler is shut down by any safety control or interlock. Indicating lights shall be provided on the control panel. A red light shall indicate flame failure, and a green light shall indicate that the main fuel valve is open. The following shutdown conditions shall require a manual reset before the boiler can automatically recycle:

a. Flame failure.

b. Failure to establish pilot flame.

c. Failure to establish main flame.

d. Low-water cutoff.

e. High temperature cutoff

2.3.7.1 Low-water Cutoff

Low water cutoff shall be float actuated switch or electrically actuated probe type low-water cutoff. Float chamber shall be provided with a blow-down connection. Cutoff shall cause a safety shutdown and sound an alarm when the boiler water level drops below a safe minimum level. A safety shutdown due to low water shall require manual reset before operation can be resumed and shall prevent recycling of the burner. The cutoff shall be in strict accordance to the latest version of code,ASME CSD-1 Controls and Safety Devices for Automatically Fired Boilers.

a. Feedwater Regulator with Low-Water Cutoff: Regulator shall be an approved design sized for the application. A regulator shall be provided for each boiler. The feeder shall be so arranged that water will be fed to the boiler automatically when the water level in the boiler drops below a preset point and will actuate the alarm bell when the water level reaches the low danger point. The boiler feeder shall be arranged so that the burner and forced-draft fan will stop whenever the water level drops below a preset danger point. The boiler feeder shall be constructed so that the feedwater valve and seat are isolated from the float chamber to prevent overheating of the feed water and precipitation of scale on either the valve or seat. Each float mechanism, valve, and seat shall be constructed of an approved, durable, corrosion-resistant steel alloy. Valve seats shall be removable and renewable. The regulator shall be equipped with a large, self-cleaning strainer. The drain valve on the regulator shall be the gate or other straight-through type.

2.3.7.2 Water Flow Interlock

Hot water boiler limit controls shall be provided to include protection for low boiler water flow and high boiler water temperature. The limit controls shall be interlocked with the combustion control system to effect boiler alarm and shutdown. The controls shall not allow boiler startup unless hot water flow is proven.

2.4 Not Used

2.5 COLD WATER CONNECTIONS

Connections shall be provided which includes consecutively in line a strainer, backflow prevention device, and water pressure regulator in that order in the direction of the flow. The backflow prevention device shall be provided as indicated and in compliance with Section 15400, PLUMBING, GENERAL PURPOSE. Cold water fill connections shall be made to the water supply system as indicated. Necessary pipe, fittings, and valves required for water connections between the boiler and cold water main shall be provided as shown. The pressure regulating valve shall be of a type that will not stick or allow pressure to build up on the low side. The valve

shall be set to maintain a terminal pressure of approximately,lately 5 psi in excess of the static head on the system and shall operate within a 2 psi tolerance regardless of cold water supply piping pressure and without objectionable noise under any condition of operation.

2.6 Not Used

2.7 Not Used

2.8 Not Used

2.9 Not Used

2.10 FITTINGS AND ACCESSORIES

Boiler fittings and accessories shall be installed with each boiler in accordance with ASME BPV IV, unless otherwise specified.

2.10.1 Not Used

2.10.2 Not Used

2.10.3 Not Used

2.10.4 Not Used

2.10.5 Direct Vents

Direct venting shall be used for condensing type boilers. Both the air intake and exhaust vents shall be sized and located as indicated on the drawings and as recommended by the boiler manufacturer. A separate combustion air intake vent and exhaust vent shall be provided for each boiler.

2.10.5.1 Combustion Air Intake Vent

The combustion air intake piping shall be constructed of Schedule 40 PVC per ASTM D 1784. The vent shall be suitable for the temperature at the boiler combustion air intake connection point. Each intake shall be provided complete with bird screen.

2.10.5.2 Exhaust Vent

The exhaust vent piping shall be constructed of stainless steel conforming to UL 1738 and the boiler manufacturer's recommendations. Plastic materials polyetherimide (PEI) and polyethersulfone (PES) are forbidden to be used for vent piping of combustion gases. The exhaust vent shall be suitable for the maximum anticipated boiler exhaust temperature and shall withstand the corrosive effects of the condensate. A 0.3125 inch diameter hole shall be provided in the stack not greater than 6 inches from the boiler flue outlet for sampling of the exit gases. A method shall be provided to seal the hole to prevent exhaust gases from entering the boiler room when samples are not being taken. Each exhaust stack shall be provided complete with bird screen.

2.10.6 Vibration and Sound Control

Set boiler on neoprene pad or vibration isolator as recommended by boiler manufacturer.

Provide flexible connection at combustion air intakes, exhaust vent, and at hot water supply and return connections.

Provide manufacturers standard silencer or muffler with each boiler. Silencer shall be stainless steel construction. Silencer shall be support directly to structure, and not support by exhaust vent ductwork.

2.11 Not Used

2.12 INSULATION

Shop and field-applied insulation shall be as specified in Section 15080 THERMAL INSULATION FOR MECHANICAL SYSTEMS.

2.13 TOOLS

Special tools shall be furnished. Special tools shall include uncommon tools necessary for the operation and maintenance of boilers, burners, pumps, fans, controls, meters, special piping systems, and other equipment. Small hand tools shall be furnished within a suitable cabinet, mounted where directed.

2.13.1 Not Used

2.13.2 Not Used

2.13.3 Not Used

2.13.4 Not Used

2.14 Not Used

2.15 Not Used

PART 3 EXECUTION

3.1 ERECTION OF BOILER AND AUXILIARY EQUIPMENT INSTALLATION

Coordinate with plumbing, heating and gas piping as necessary to interface installation of boilers with other components of boiler system.

Install boilers in accordance with requirements of governing codes, boiler manufacturer's installation instructions and as indicated on drawings. Maintain adequate clearances around boilers to permit inspections, maintenance and normal visibility.

All gas train items requiring venting shall be vented to outdoors.

Flush, cure and thoroughly clean boilers upon completion of installation in accordance with boiler manufacturer's instruction.

Arrange for inspection of boiler installation by certified State Boiler Inspector before initial start-up. Boiler shall not be placed into operation until required certificates of inspection and approval have been issued.

3.2 FIELD QUALITY CONTROL

Boiler manufacturer shall provide a factory-trained service representative to supervise starting, adjusting and testing of the initial firing of each boiler and to instruct the Owner's boiler operators in the proper operation and maintenance of the boilers and equipment.

Boiler shall be tested to demonstrate control and operational conformance to the requirements of this specification, under varying load conditions ranging from specified capacity to minimum burner turndown ratio without "ON-OFF" cycling. Operational tests shall include the following:

Boiler and auxiliary equipment shall be installed in accordance with manufacturer's written instructions. Proper provision shall be made for expansion and contraction between boiler foundation and floor. This joint shall be packed with suitable nonasbestos rope and filled with suitable compound that will not become soft at a temperature of 100 degrees F. Boilers and firing equipment shall be supported from the foundations by structural steel completely independent of all brickwork. Boiler supports shall permit free expansion and contraction of each portion of the boiler without placing undue stress on any part of the boiler or setting. Boiler breeching shall be as indicated with full provision for expansion and contraction between all interconnected components.

3.3 Not Used

3.4 GAS FUEL SYSTEM

Gas piping, fittings, valves, regulators, tests, cleaning, and adjustments shall be in accordance with the Section 15190 GAS PIPING SYSTEMS. NFPA NFPA 54/ANSI Z223.1 shall be complied with unless otherwise specified. Burners, pilots, and all accessories shall be listed in UL Gas&Oil Dir. The fuel system shall be provided with a gas tight, manually operated, UL listed stop valve at the gas-supply connections, a gas strainer, a pressure regulator, pressure gauges, a burner-control valve, a safety shutoff valve suitable for size of burner and sequence of operation, and other components required for safe, efficient, and reliable operation as specified. Approved permanent and ready facilities to permit periodic valve leakage tests on the safety shutoff valve or valves shall be provided.

3.5 Not Used

3.6 Not Used

3.7 Not Used

3.8 Not USed

3.9 HEATING SYSTEM TESTS

Before any covering is installed on pipe or heating equipment, the entire heating system's piping, fittings, and terminal heating units shall be hydrostatically tested and proved tight at a pressure of 1-1/2 times the design working pressure, but not less than 100 psi. Before pressurizing system for test, items or equipment (e.g., vessels, pumps, instruments, controls, relief valves) rated for pressures below the test pressure shall be blanked off or replaced with spool pieces. Before balancing and final operating test, test blanks and spool pieces shall be removed; and

protected instruments and equipment shall be reconnected. With equipment items protected, the system shall be pressurized to test pressure. Pressure shall be held for a period of time sufficient to inspect all welds, joints, and connections for leaks, but not less than 2 hours. No loss of pressure will be allowed. Leaks shall be repaired and repaired joints shall be retested. Repair joints shall not be allowed under the floor for floor radiant heating systems. If a leak occurs in tubing located under the floor in radiant heating systems, the entire zone that is leaking shall be replaced. If any repair is made above the floor for floor radiant heating systems, access shall be provided for the installed joint. Caulking of joints shall not be permitted. System shall be drained and after instruments and equipment are reconnected, the system shall be refilled with service medium and maximum operating pressure applied. The pressure shall be held while inspecting these joints and connections for leaks. The leaks shall be repaired and the repaired joints retested. Upon completion of hydrostatic tests and before acceptance of the installation, the Contractor shall balance the heating system in accordance with Section 15990 TESTING, ADJUSTING AND BALANCING OF HVAC SYSTEMS; and operating tests required to demonstrate satisfactory functional and operational efficiency shall be performed. The operating test shall cover a period of at least 24 hours for each system, and shall include, as a minimum, the following specific information in a report, together with conclusions as to the adequacy of the system:

a. Certification of balancing.

b. Time, date, and duration of test.

c. Outside and inside dry bulb temperatures.

d. Temperature of hot water supply leaving boiler

e. Temperature of heating return water from system at boiler inlet.

f. Quantity of water feed to boiler.

g. Boiler make, type, serial number, design pressure, and rated capacity.

h. Fuel burner make, model, and rated capacity; ammeter and voltmeter readings for burner motor.

i. Circulating pump make, model, and rated capacity, and ammeter and voltmeter readings for pump motor during operation.

j. Flue-gas temperature at boiler outlet.

k. Percent carbon dioxide in flue-gas.

l. Grade or type and calorific value of fuel.

m. Draft at boiler flue-gas exit.

n. Draft or pressure in furnace.

o. Quantity of water circulated.

p. Quantity of fuel consumed.

q. Stack emission pollutants concentration.

Indicating instruments shall be read at half-hour intervals unless otherwise directed. The Contractor shall furnish all instruments, equipment, and personnel required for the tests and balancing. Fuels, water, and electricity shall be obtained as specified in the SPECIAL CONTRACT REQUIREMENTS. Operating tests shall demonstrate that fuel burners and combustion and safety controls meet the requirements of ASME CSD-1.

3.10 CLEANING

3.10.1 Boilers and Piping

After the hydrostatic tests have been made and before the system is balanced and operating tests are performed, the boilers and feed water piping shall be thoroughly cleaned by filling the system with a solution consisting of either 1 pound of caustic soda or 1 pound of trisodium phosphate per 50 gallons of water. The proper safety precautions shall be observed in the handling and use of these chemicals. The water shall be heated to approximately 150 degrees F and the solution circulated in the system for a period of 48 hours. The system shall then be drained and thoroughly flushed out with fresh water. Strainers and valves shall be thoroughly cleaned. Prior to operating tests, air shall be removed from all water systems by operating the air vents.

3.11 Not Used

3.11.1 Not Used

3.11.2 Gas System Test

The gas fuel system shall be tested in accordance with the test procedures outlined in NFPA NFPA 54/ANSI Z223.1.

3.12 FIELD TRAINING

The Contractor shall conduct a training course for the operating staff as designated by the Contracting Officer. The training period shall consist of a total of 24 hours of normal working time and shall start after the system is functionally completed but prior to final acceptance tests. The field instructions shall cover all of the items contained in the approved operation and maintenance instructions, as well as demonstrations of routine maintenance operations and boiler safety devices. The Contracting Officer shall be notified at least 14 days prior to date of proposed conduction of the training course.

-- End of Section --

AMENDMENT NO. 2

Project:	Consolidated Lodging Facility Phase Three Mpls–St.Paul IAP Air Reserve Station	**Date**:	March 25, 2002 **Solicitation No:** DACA 45-02-B-0008 **Comm. No**: 1999041
Bids Due:	2:00 P.M. CST April 4, 2002	**Owner**:	Department of the Army Omaha District, Corps of Engineers 105 North 15th Street Omaha, Nebraska 68102-4978

SECOND AMENDMENT TO BIDDING DOCUMENTS, CONTRACT DRAWINGS AND PROJECT MANUAL: The additions, revisions, corrections, and clarifications contained herein shall become a part of the Contract Documents for the Project and shall be included in the Scope of Work and Bid Proposals to be submitted. References made below to Specifications and Contract Drawings shall be used as a general guide only. Bidders shall determine for themselves the full scope of work affected by Addendum items.

CHANGES TO THE PROJECT SPECIFICATIONS:

1. Section 05500 – Miscellaneous Metal
   a. Paragraph 2.7: Delete paragraph in its entirety.
   b. Paragraph 3.5: Delete paragraph in its entirety.

2. Section 07421 – Composite Metal Building Panels
   a. Paragraph 2.6: Revise paragraph to read as follows: "Insulation for exterior walls shall be as specified in Section 04220 NONBEARING MASONRY VENEER / STEEL STUD WALLS, paragraph 2.5.2 Insulating Sheathing."

3. Section 07220 – Roof Insulation
   a. Paragraph 3.7.3: Delete last sentence of paragraph beginning with "Water-tight standing seam…"

4. Section 13851 – Fire Detection and Alarm System, Addressable
   a. Paragraph 2.1: Delete paragraph 2.1 in its entirety.
   b. Paragraph 2.2: Delete paragraph 2.2 in its entirety.
   c. Paragraph 2.4: Delete paragraph 2.3 in its entirety.
   d. Paragraph 2.8: Delete paragraph 2.8 in its entirety.
   e. Paragraph 3.1.1: Delete paragraph 2.1 in its entirety.
   f. Paragraph 3.1.3: Delete paragraph 2.1 in its entirety.

400 Clifton Avenue South, Minneapolis, Minnesota, 55403-3299, Tel: (612)871-5703, Fax: (612)871-7212

5. **Section 15400 – Plumbing, General Purpose**
   a. Paragraph 3.6.3: Add the following sentence to paragraph, "Apply color tabs on ceilings to indicate location of valves, control boxes or access doors above the ceiling".

6. **Section 15569 – Water Heating; Gas: Up to 20 MBTUH**
   a. Add the attached Specification Section 15569 – Water Heating; Gas: Up to 20 MBTUH, to the Project Specifications.

7. **Section 15895 – Air Supply, Distribution, Ventilation, and Exhaust system**
   a. Paragraph 2.8.3.2: After the heading "Fire Dampers" add "(and combination smoke and fire dampers)."

8. **Section 15950 – HVAC Sequence of Operation**
   a. Paragraph 3.1.4: Revise paragraph title to "Air Handling Unit AHU-2.2. Control"
   b. Paragraph 3.1.4: Delete all references to outside air damper for AHU-2.2.
   c. Paragraph 3.1.4: Delete all references to resetting discharge temperature for humidity control.
   d. Paragraph 3.1.5: Revise paragraph title to "Combination Smoke and Fire Dampers."
   e. Paragraph 3.1.7: Revise item 5 to read: "In "Cool" temperature mode, compressor shall cycle to maintain temperature set point."
   f. Paragraph 3.1.12: Add the following new paragraph:
   "3.1.12 Boilers (B1.1 and B1.2) Control Sequence

   System consists of:

   One (1) hot water boiler.

   Two (2) circulating pumps (parallel operation)

   Boiler Manufacturer's Boiler Management System (BMS)

   Hot Water Supply Reset: BMS shall reset hot water supply temperature based on outside air temperature per the following schedule:

OUTSIDE AIR		HOT WATER SUPPLY	
0 F	200 F·	65 F	160 F

   Hot Water Control: Furnished as part of the BMS and will maintain reset schedule by modulating boiler-burner.

   Mechanical Contractor shall be responsible for installing and connecting all boiler burner controllers and indicators that are not factory installed and wired by boiler manufacturer. The above shall include all work on remote boiler control panel as required for specified boiler. Interlock boilers with hot water pumps so that pumps run before burner is allowed to fire and burners stop when hot water pumps are stopped. Enable/Disable boiler from BAS with a dry contact.

9. Section 15951 - Direct Digital Control for HVAC

a. Paragraph 1.2: Add the sentence: "Installed system shall allow control from the head end controller of the existing Johnson Controls Metasys DDC system."

b. Paragraph 1.3: Submittals under SD-8 Statements: Training Course Materials, revise the last sentence to read: "The training course material shall include the operation manual, maintenance and repair manual, diagnostics using the provided portable workstation tester and central workstation tester, and paper copies of overheads used in the course.

10. Section 15990 - Testing, Adjusting, And Balancing of HVAC Systems

a. Paragraph 1.6: Add the following, "In addition to the new work the entire heating water system of the existing facility shall be balanced to obtain a balance of the entire system. The existing system consists of approximately four air handling unit coils, eight fan coil unit coils, twelve unit heaters, one cabinet unit heater, fin tube convectors, and two circulation pumps."

CHANGES TO THE CIVIL AND LANDSCAPE DRAWINGS:

1. Drawing C1.3 (Phase Three Site Demolition)

a. Revise note is southwest corner of site that reads "Clear and grub" to read as follows: "Clear and grub tree"

2. Drawing C2.3 (Phase Three Site Excavation)

a. Revise Phase Three Site Excavation to add legend reference per reissued sheet C2.3 (see attached drawing.)

3. Drawing C4.3 (Phase Three – Erosion Control Plan)

a. Clarification: Dashed "L" shaped line around building has no relevance to this plan and is deleted from drawing.

4. Drawing C5.3 (Phase Three Site Surfacing Plan)

b. Revise Site Surfacing Plan to add detail references per reissued sheet C5.3 (see attached drawing.)

5. Drawing C9.3 (Site Details)

a. Detail 8: Revise detail to be "Not in Contract".

6. Drawing C11.3 (Site Details)

a. Detail 24: Revise detail to be "Not in Contract".

b. Detail 25: Revise detail to be "Not in Contract".

CHANGES TO THE ARCHITECTURAL DRAWINGS:

1. **Drawing A2.9 (Roof Plan)**
   a. Detail 5B: Extend east/west section of roof protective mat east to grid 4.8 (approximately 9753 mm (32 feet).

2. **Drawing A5.8 (Roof Details)**
   a. Detail 3D: Add the following note: "Provide 1200 mm x 1200 mm (4'- 0" x 4'- 0") sump centered on roof drain, typ."

3. **Drawing A5.9 (Exterior Details)**
   a. Detail 1C: Add the following note to the relieving angle shown, "Relieving angle to be 717 mm x 100 mm x 9 mm (7" x 4" x 3/8") angle. Fasten as required to accommodate for 6 lb/ft brick load."
   b. Detail 3A: Add the following note to the relieving angle shown above window head, "Relieving angle to be 717 mm x 100 mm x9 mm (7" x 4" x 3/8") angle. Fasten as required to accommodate 6 lb/ft brick load."
   c. Detail 4A: Revise rigid insulation R-value to be R-5 per inch (in lieu of R-12)

4. **Drawing A5.15 (Exterior Details)**
   a. Detail 3D: Add note to read: "At similar condition, face of metal panel is to be flush with precast sill below".

5. **Drawing A7.4 (Enlarged Room Plans and Interior Elevations)**
   a. Detail 5B: Add the following note: "See 5D/A7.5 for minibar elevation".
   b. Detail 5A (A) and 5A (C): Add the following note to both elevations: "Provide sealant between tub and ceramic tile".

CHANGES TO THE STRUCTURAL DRAWINGS:

1. **Sheet S1.4 (Foundation Plan)**
   a. Detail 5A: Provide #5 dowels at 8" o.c. vertical from link foundation wall to elevator shaft foundation wall at grid 4.8. Dowels to extend min. 24" into each foundation wall.

2. **Sheet S1.5 (Control Joint Plans)**
   a. Add Recessed Floor mat location in slab on grade at Corridor 1113. Add General Note #6 to read, "Refer to architectural drawings for exact size and location of recessed floor mats."

3. **Drawing S2.3 (Foundation Details)**
   a. Detail 11: Revise note "6x6 – W2.9 x W2.9 WWM" to read "#4 bars at 16" o.c. each way"

4. **Sheet S3.7 (First and Second Floor Framing Plan)**
   a. Detail 5A: Move detail reference cut "7/S4.7" from Grid F to Grid D.3.
   b. Add following text to General Framing Plan note No. 4: "Topping to be reinforced with 6x6 – W2.1xW2.1 W.W.M."

c. Add Framing Plan Keyed Note 12: "(2) Link columns adjacent existing building to be anchored to existing piers with (4) ¾" diameter x 6" long expansion anchor bolts."

5. Sheet S3.8 (Third and Fourth Floor Framing Plan)

a. Add following text to Framing Plan General Note No. 4: "Topping to be reinforced with 6x6 – W2.1xW2.1 W.W.M."

6. Sheet S3.10 (Roof Framing Plan)

a. Move detail cut "7/S4.6" on Grid 2.5 south of Grid K.4 at CMU wall.

7. Sheet S4.6 (Structural Details)

a. Detail 7: Add #4 dowel x 16" long at 16" o.c. from bond beam to 4" CMU.

8. Sheet S4.8 (Structural Details)

a. Detail 10: Revise detail per attached drawing S13.

b. Detail 11: Revise length of 102mm x 89mm x 8mm(4" x 3 ½" x 5/16") angle to be 400mm (16") in lieu of 152mm (6").

CHANGES TO THE MECHANICAL DRAWINGS:

1. Drawing M2.4 (1st Floor Mechanical Plan)

a. Add General Note 4: "Manual balancing dampers shall be installed at all individual duct takeoffs and all duct branch takeoffs for all supply, return, and exhaust ducts."

b. For notes referring to the water heater and associated items, revise "(BY OTHERS)" to read, "(BY PLUMBING CONTRACTOR)."

c. Clarification: Reference symbol for enlarged plan of mechanical room should read, "A /M2.4 | M3.2.

2. Drawing M2.5 (2nd, 3rd and 4th Floor Mechanical Plan)

a. Add General Note 2: "Manual balancing dampers shall be installed at all individual duct takeoffs and all duct branch takeoffs for all supply, return, and exhaust ducts."

3. Drawing M3.2 (Mechanical Equipment Room Plans, Chase Details, Sections)

a. Add General Note 2: "Manual balancing dampers shall be installed at all individual duct takeoffs and all duct branch takeoffs for all supply, return, and exhaust ducts."

4. Drawing M6.4 (Mechanical Details)

a. Detail 10: Add a keynote 2 symbol after "BALANCE VALVE" and add keynote 2: "Contractor will install balancing valves on the hot water coils return pipes for existing air handling units AHU-1.1 (69 gpm), AHU-1.2 (20.3 gpm), AHU-2.1 (45 gpm), and AHU-2.2 (7.3 gpm). Contractor to verify actual piping arrangements."

5. Drawing M7.4 (Mechanical Schedules)
   a. Add boiler HWB-1.2. Boiler to be Fulton PHW 1400 or approved equal. Install according to manufacturer's instructions. Include the manufacturer's standard trim, including intake and exhaust mufflers, vibration isolation mounting pads, vibration hangers on combustion intake and flue vent piping and mufflers, pipe flexible connectors, PVC combustion air intake pipe, stainless steel flue vent, screened inlet, exhaust vent wall cap, and all required collars, sleeves, escutcheons, and flashing. Locate in Phase 1 mechanical room (Room 1019) between the existing boiler HWB-1.1 and the water heater. Connect water piping and gas piping to existing. Route combustion air intake to east wall near existing combustion air intake. Route flue vent to west wall near existing flue vent. Install condensate drainpipe to plumbing drain.
   b. Revise heating capacity of HC-2.1 to 520 MBH.
   c. Revise external static pressure of AHU-2.1 exhaust fan to 3 inches water gauge.

CHANGES TO THE FIRE PROTECTION DRAWINGS:

1. Drawing F2.4 (1st Floor & Basement Fire Protection Plan)
   a. General Notes: Revise note number 6 to read, "Not Used".

CHANGES TO THE ELECTRICAL DRAWINGS:

1. Drawing E0.1 (Electrical Legend Symbols)
   a. The standard symbol for a single telephone outlet (triangle) shall be re-defined to be a telephone/data duplex jack configuration, which shall include 2 cable runs of category 5 cable to each outlet with the exception of room 0104 which shall only have 2 phone lines as shown.

2. Drawings EU3.0 (Electrical Utility Plan)
   a. Revise Note 4 to refer to Phase 3 building, not Phase 2 building.
   b. Delete Site Plan Notes #3 and #7.
   c. Revise Site Plan Note #8 to read as follows," Refer to drawing A2.3, detail 3A for equipment layout at service area."
   d. Remove all fiber optic cable from this project.

3. Drawing E2.3 (1st Floor and Basement Power Plans)
   a. Add a GFI weatherproof duplex receptacle to the exterior wall on the East side of room 1109, between doors and louver, and wire it to panel AIB-21.
   b. In Elevator Equipment Room 0104, add a lockable disconnect to each elevator control panel and light circuit.
   c. The 120V receptacle shown in Elevator Equipment Room 0104 shall be a GFI receptacle.
   d. Each elevator shall have a 200 A fused disconnect. The fuses in this disconnect shall be 110A Provide a N.O. auxiliary contact for the anti-entrapment device interface on the disconnect.

4. Drawings E3.3
   a. Heat detectors shown in elevator hoistway shall be located in pit below two feet level.

b. Add a heat detector to elevator equipment room 104 and wire to meet ASME A17.1 for power shunt trip.

5. Drawing E5.9 (Riser Diagram)

a. Drawing of MDP-A states provide customer metering as specified. Customer metering shall be a Square-D PowerLogic model PM620 with LCD display or approved equal, to be mounted on the face of MDP-A.

6. Drawings E5.10

a. The four strand fiber running between the main closet and each floor shall be multi-mode.
b. Remove all fiber optic cable from this project.

7. Drawings E5.11 (Fire Detection and Cable TV Riser Diagram)

a. Revision: Stand alone smoke detectors in all the guest rooms should NOT be connected to the main FACP as was shown on riser diagram.
b. Delete the heat detectors at the top of the elevator hoistway.
c. The main fire alarm control panel shall be labeled “existing and located in Phase 1 building”, all runs shall terminate at this panel.
d. There shall be only one annunciator panel which shall be located in Phase III building as shown.
e. Contractor shall verify the batteries in the Phase 1 main fire alarm control panel are adequately sized to accommodate all phases and upgrade as required.

8. Drawings E7.3 (Electrical Schedules)

a. Electrical Schedule sheet layout is revised for clarity and reissued (see attached drawing E7.3)

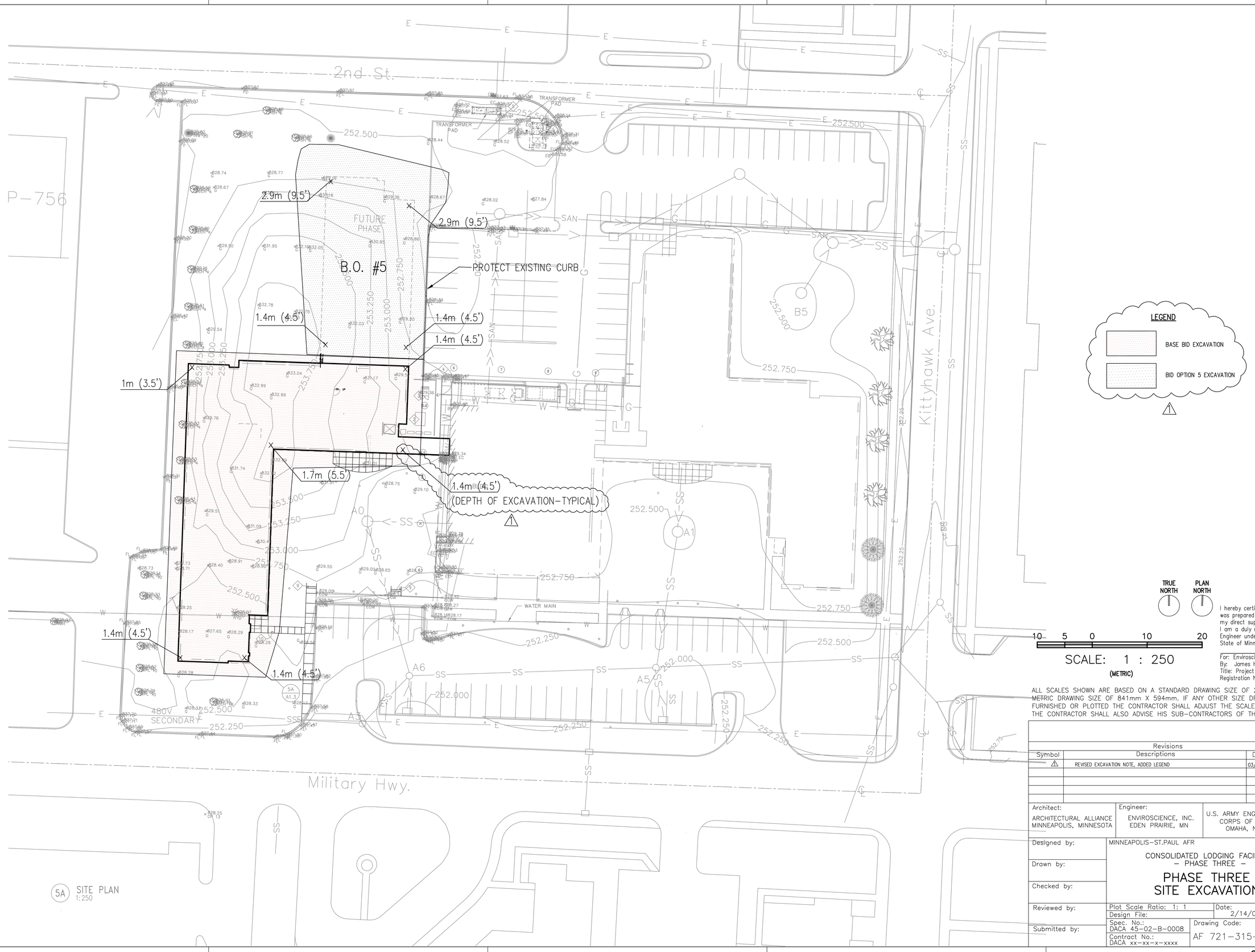
9. Drawings E7.4 (Electrical Schedules)

a. Electrical Schedule sheet layout is revised for clarity and reissued (see attached drawing E7.4).

10. Drawings E7.5 (Electrical Schedules)

a. Electrical Schedule sheet layout is revised for clarity and reissued (see attached drawing E7.5)

END OF AMENDMENT



5A SITE PLAN
1:250

I hereby certify this drawing was prepared by me or under my direct supervision and that I am a duly registered Engineer under the laws of the State of Minnesota.

For: Enviroscience, Inc.
By: James Henderson, P.E.
Title: Project Engineer
Registration No: 15241

ALL SCALES SHOWN ARE BASED ON A STANDARD DRAWING SIZE OF 28" X 40" OR METRIC DRAWING SIZE OF 841mm X 594mm. IF ANY OTHER SIZE DRAWINGS ARE FURNISHED OR PLOTTED THE CONTRACTOR SHALL ADJUST THE SCALES ACCORDINGLY. THE CONTRACTOR SHALL ALSO ADVISE HIS SUB-CONTRACTORS OF THE ABOVE.

Revisions			
Symbol	Descriptions	Date	Approved
1	REVISED EXCAVATION NOTE, ADDED LEGEND	03/20/02	

Architect: ARCHITECTURAL ALLIANCE MINNEAPOLIS, MINNESOTA	Engineer: ENVIROSCIENCE, INC. EDEN PRAIRIE, MN	U.S. ARMY ENGINEER DISTRICT CORPS OF ENGINEERS OMAHA, NEBRASKA

Designed by:
Drawn by:
Checked by:
Reviewed by:
Submitted by:

MINNEAPOLIS-ST.PAUL AFR — MINNESOTA

CONSOLIDATED LODGING FACILITY
– PHASE THREE –

PHASE THREE SITE EXCAVATION

Plot Scale Ratio: 1: 1	Date: 2/14/02	Sheet reference number:
Design File:		
Spec. No.: DACA 45-02-B-0008	Drawing Code: AF 721-315-03	C2.3
Contract No.: DACA xx-xx-x-xxxx		

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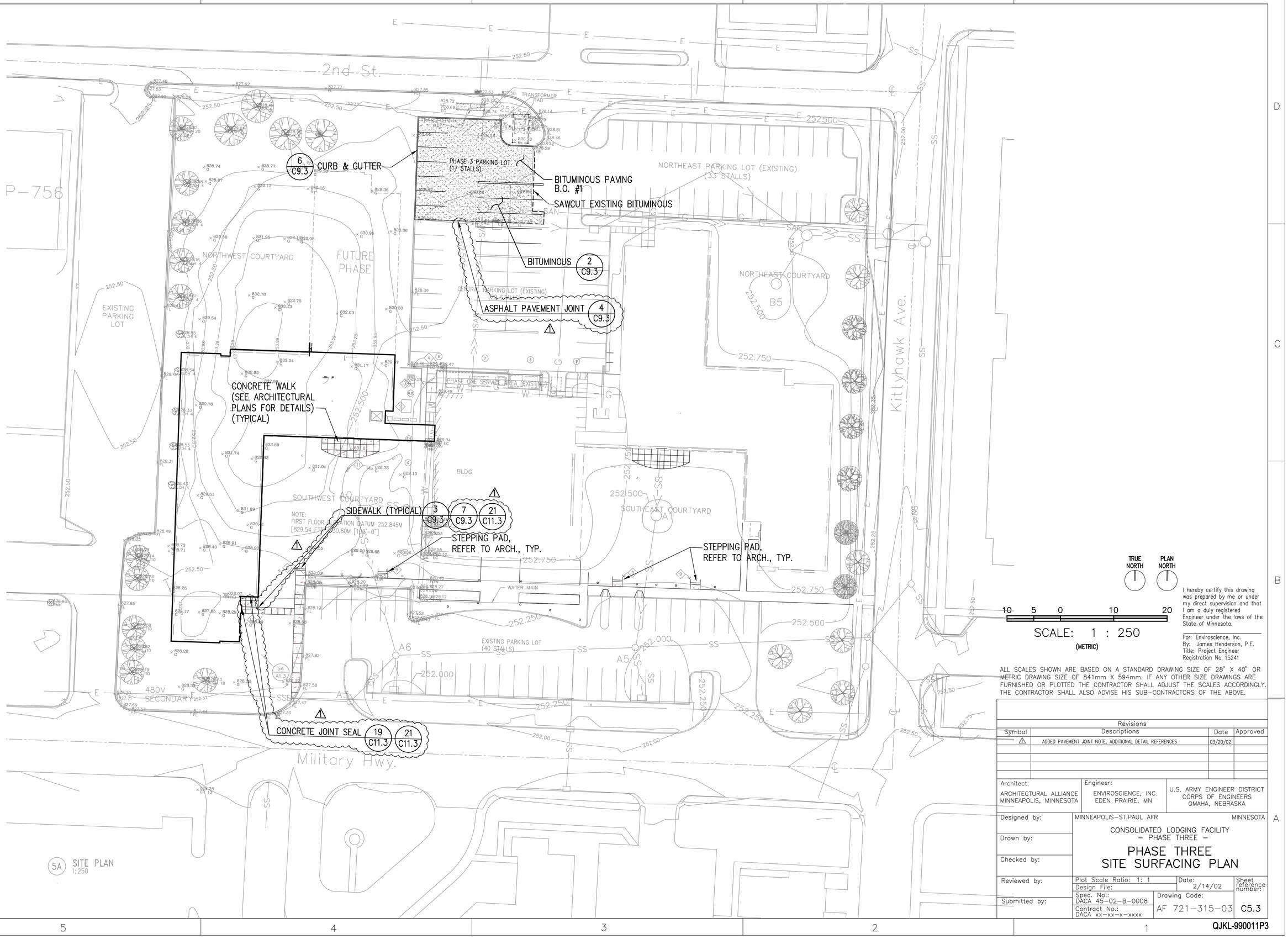

I hereby certify this drawing was prepared by me or under my direct supervision and that I am a duly registered Engineer under the laws of the State of Minnesota.

For: Enviroscience, Inc.
By: James Henderson, P.E.
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Revisions

Symbol	Descriptions	Date	Approved
1	ADDED PAVEMENT JOINT NOTE, ADDITIONAL DETAIL REFERENCES	03/20/02	

Architect:	Engineer:	
ARCHITECTURAL ALLIANCE MINNEAPOLIS, MINNESOTA	ENVIROSCIENCE, INC. EDEN PRAIRIE, MN	U.S. ARMY ENGINEER DISTRICT CORPS OF ENGINEERS OMAHA, NEBRASKA

Designed by:
Drawn by:
Checked by:
Reviewed by:
Submitted by:

MINNEAPOLIS-ST.PAUL AFR — MINNESOTA

CONSOLIDATED LODGING FACILITY
– PHASE THREE –

PHASE THREE SITE SURFACING PLAN

Plot Scale Ratio: 1: 1	Date: 2/14/02	Sheet reference number:
Design File:		
Spec. No.: DACA 45-02-B-0008	Drawing Code: AF 721-315-03	C5.3
Contract No.: DACA xx-xx-x-xxxx		

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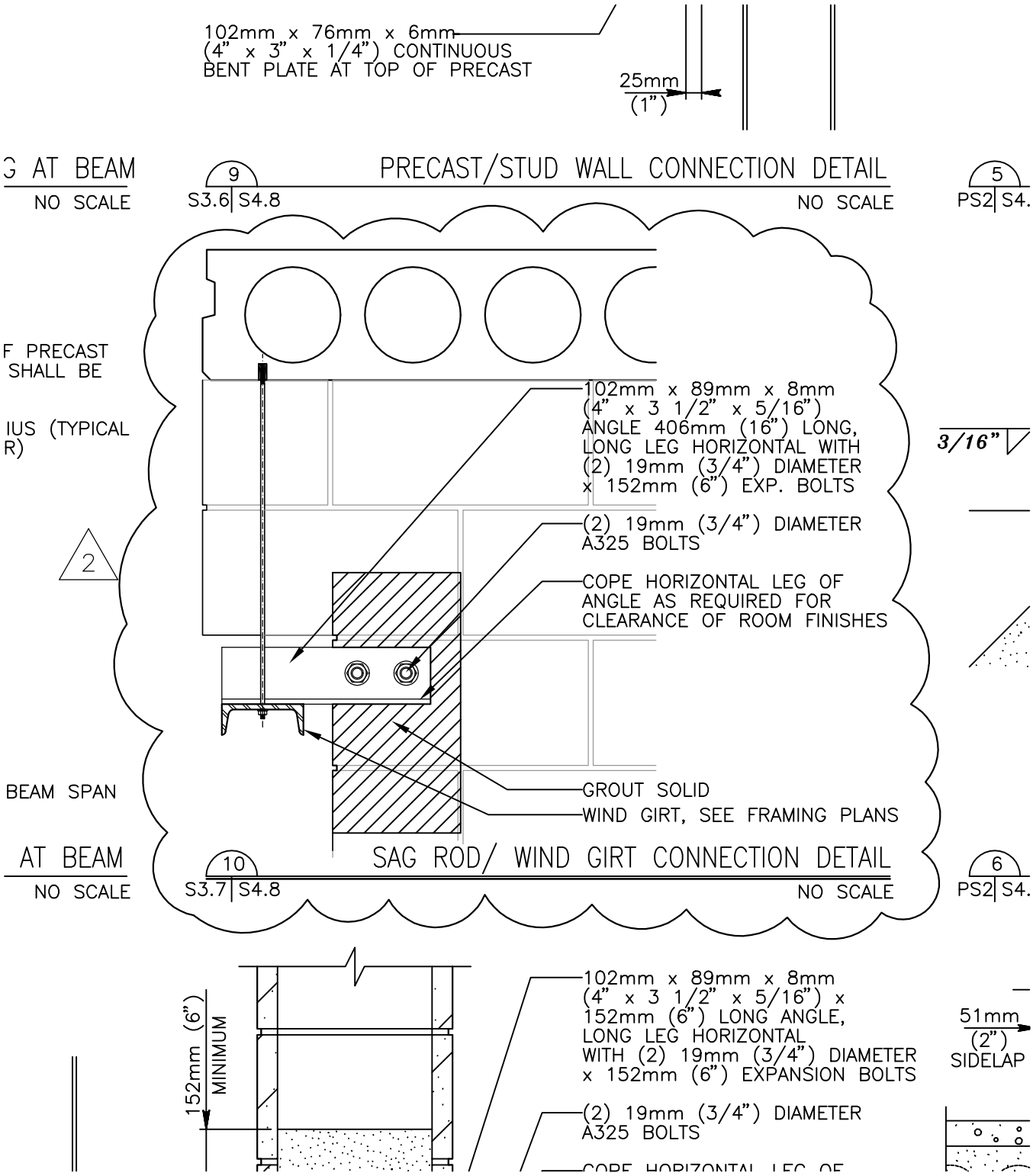

Architect: ARCHITECTURAL ALLIANCE MINNEAPOLIS, MINNESOTA	Engineer: MEAD & HUNT MADISON, WISCONSIN	U.S. ARMY ENGINEER DISTRICT CORPS OF ENGINEERS OMAHA, NEBRASKA
Designed by: JMM Drawn by: ACT Checked by: TLK	MINNEAPOLIS–ST.PAUL AFR MINNESOTA CONSOLIDATED LODGING FACILITY PHASE THREE – AMENDMENT #2 S13 REVISED DETAIL 10/4.8	
Reviewed by: REC Submitted by:	Plot Scale Ratio: 1:1 Date: 3–25–2002 Design File: AmendS13.dwg Spec. No.: DACA 45–02–B–0008 Drawing Code: AF–721–315–03 Contract No.:	Sheet Reference Number: S4.8

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